What is claimed is:

1. An amphiphilic block copolymer of formula

$$\begin{array}{c}(Q - L_1)_p \\ (B - L_2)_q\end{array}\!\!>\!\!A\!\!-\!\!\left[\!L_3\!-\!(alk)\!\!<\!\!\begin{array}{c}(L_1 - Q)_{p1} \\ (L_2 - B)_{q1}\end{array}\!\!\right]_t \qquad (1),$$
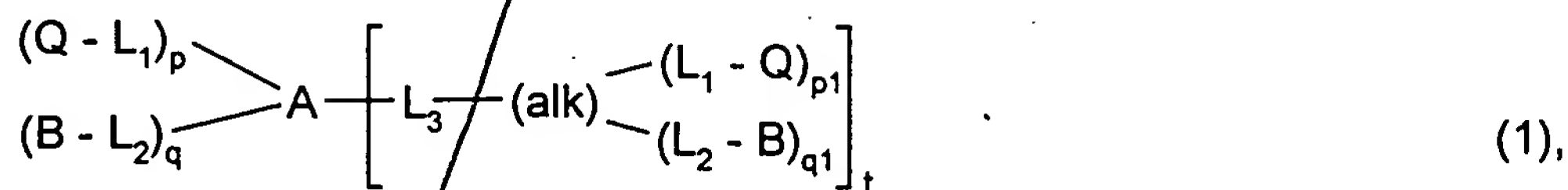
5     wherein A is a hydrophobic polysiloxane or perfluoroalkyl polyether segment;

B is a surface-modifying hydrophilic segment having a weight average molecular weight of ≥100

that is devoid of a crosslinkable group;

Q is a moiety comprising at least one crosslinkable ethylenically unsaturated group;

(alk) is $C_2$-$C_{20}$-alkylene which is unsubstituted or substituted by hydroxy;

10     $L_1$, $L_2$ and $L_3$ are each independently of the other a linking group;

p1 and q1 are each independently of the other an integer from 1 to 12; and either

t is 0 and p and q are each independently of the other an integer from 1 to 25; or

t is an integer from 1 to 8 and p and q are each 0.

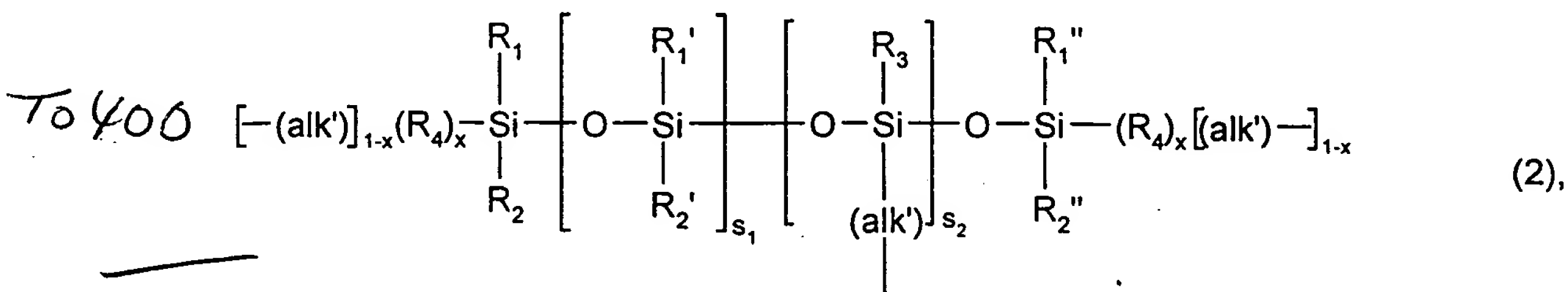15     2. An amphiphilic block copolymer according to claim 1 of formula

$$\begin{array}{c}(Q - L_1)_{p1} \\ (B - L_2)_{q1}\end{array}\!\!>\!\!(alk)\!\!-\!\!L_3\!\!-\!\!A\!\!-\!\!L_3\!\!-\!\!(alk)\!\!<\!\!\begin{array}{c}(L_1 - Q)_{p1} \\ (L_2 - B)_{q1}\end{array} \qquad (1a),$$
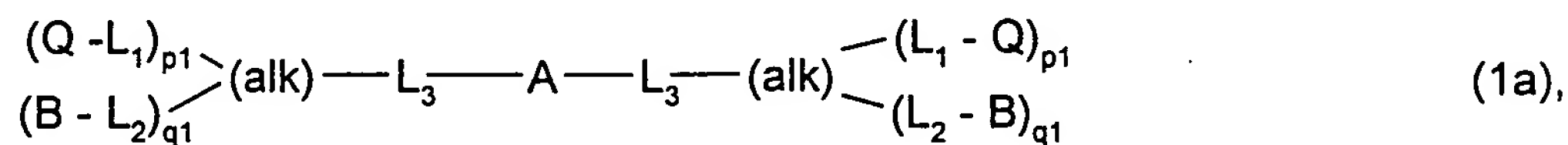
wherein A, B, $L_1$, $L_2$, $L_3$, Q, (alk), p1 and q1 are each as defined in claim 1.

3. An amphiphilic block copolymer according to claim 1 of formula

20     $$(B - L_2)_q\!\!-\!\!A\!\!-\!\!(L_1 - Q)_p \qquad (1b),$$
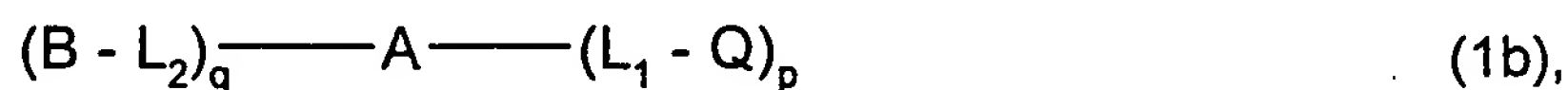
wherein A, B, $L_1$, $L_2$ and Q are each as defined in claim 1, and p and q are each independently

of the other an integer from 2 to 20.

4. An amphiphilic block copolymer according to claim 1, wherein A is a polysiloxane segment of

25     formula

To 400

$$\left[-(alk')\right]_{1-x}(R_4)_x-\underset{\underset{R_2}{|}}{\overset{\overset{R_1}{|}}{Si}}-\left[O-\underset{\underset{R_2'}{|}}{\overset{\overset{R_1'}{|}}{Si}}\right]_{s_1}-\left[O-\underset{\underset{(alk')}{|}}{\overset{\overset{R_3}{|}}{Si}}\right]_{s_2}-O-\underset{\underset{R_2''}{|}}{\overset{\overset{R_1''}{|}}{Si}}-(R_4)_x[(alk')-]_{1-x} \qquad (2),$$

wherein (alk') is alkylene having 1 to 20 carbon atoms which may be interrupted by -O-;

x is 0 or 1;

80 to 100 % of the radicals $R_1$, $R_1'$, $R_1''$, $R_2$, $R_2'$, $R_2''$, $R_3$ and $R_4$, independently of one another,

are $C_1$-$C_8$-alkyl, and 0-20% of the radicals $R_1$, $R_1'$, $R_1''$, $R_2$, $R_2'$, $R_2''$, $R_3$ and $R_4$, independently of one another, are unsubstituted or $C_1$-$C_4$ alkyl- or $C_1$-$C_4$- alkoxy-substituted phenyl, fluoro($C_1$-$C_{18}$-alkyl) or cyano($C_1$-$C_{12}$-alkyl),

$s_1$ is an integer from 5 to 700;

$s_2$ is the sum of (p+q+t-2) if x is 0, and is the sum of (p+q+t) if x is 1; wherein p, q and t are as defined in claim 1, and

the sum $(s_1+s_2)$ is from 5 to 700.


5. An amphiphilic block copolymer according to claim 1, wherein $L_1$, $L_2$ and $L_3$ are each independently of the other a bivalent linking group of formula

$$- X_1 - C(O) -NH - R_{10} - NH - C(O) - X_2 - \qquad (4a),$$
$$- X_1 - C(O) - R_{10} - C(O) - X_2 - \qquad (4b),$$

To 401

$$- X_1 - C(O) - \qquad (4c),$$
$$- C(O) - X_2 - \qquad (4d), or$$
$$- X_1 - C(O) - X_2 - \qquad (4e),$$

wherein $X_1$ and $X_2$ are each independently of the other a group -O-, -S- or -$NR_0$-, $R_0$ is hydrogen or $C_1$-$C_4$-alkyl, and $R_{10}$ is linear or branched $C_1$-$C_{18}$-alkylene or unsubstituted or $C_1$-$C_4$-alkyl- or $C_1$-$C_4$-alkoxy-substituted $C_6$-$C_{10}$-arylene, $C_7$-$C_{18}$-aralkylene, $C_6$-$C_{10}$-arylene-$C_1$-$C_2$-alkylene-$C_6$-$C_{10}$-arylene, $C_3$-$C_8$-cycloalkylene, $C_3$-$C_8$-cycloalkylene-$C_1$-$C_6$-alkylene, $C_3$-$C_8$-cycloalkylene-$C_1$-$C_2$-alkylene-$C_3$-$C_8$-cycloalkylene or $C_1$-$C_6$-alkylene-$C_3$-$C_8$-cycloalkylene-$C_1$-$C_6$-alkylene.

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6. An amphiphilic block copolymer according to claim 5, wherein $L_1$ is a linking group of formula (4a), (4c) or (4e), $L_2$ is a linking group of formula (4a), and $L_3$ is a linking group of formula (4b) or (4c).

5    7. An amphiphilic block copolymer according to claim 1, wherein B is a non-ionic segment selected from the group consisting of a polyoxyalkylene, polysaccharid, polypeptide, poly(vinylpyrrolidone), polyalkylacrylate or -methacrylate, polyhydroxyalkylacrylate or -methacrylate, polyacyl alkylene imine, polyacryl amide, polyvinyl alcohol, polyvinyl ether and a polyol, or is a polyionic segment selected from the group consisting of a polyallylammonium, 10   polyethyleneimine, polyvinylbenzyltrimethylammonium, polyaniline, sulfonated polyaniline, polypyrrole and polypyridinium segment, and a polyacrylic and polymethacrylic acid, a polythiophene-acetic acid, a polystyrenesulfonic acid and a zwitterionic segment, or a suitable salt thereof.

15   8. An amphiphilic block copolymer according to claim 1, wherein Q is a radical $Q_1$ of formula
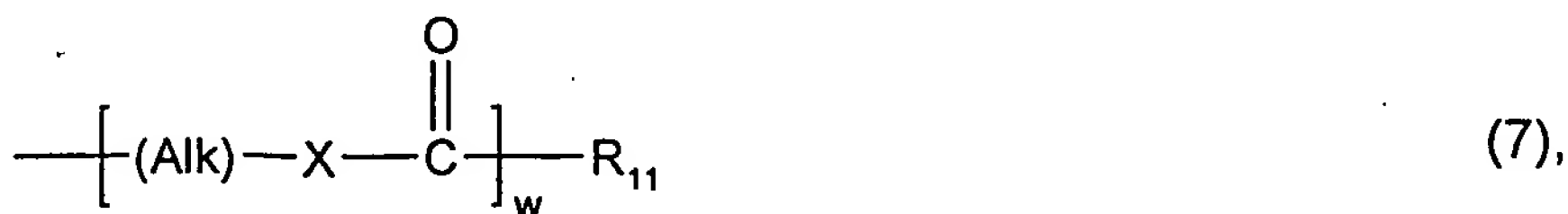
$$-\left[(Alk)-X-\overset{\overset{\displaystyle O}{\|}}{C}\right]_w-R_{11} \qquad (7),$$

wherein (Alk) is linear or branched $C_1$-$C_{12}$-alkylene, X is -O- or -NH-, $R_{11}$ is an olefinically unsaturated copolymerisable radical having from 2 to 24 carbon atoms which is unsubstituted or further substituted by $C_1$-$C_4$alkoxy, halogen, phenyl or carboxy, and w is the number 0 or 1.

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9. An amphiphilic block copolymer according to claim 1, wherein Q is a polyoxyalkylene, poly(vinylpyrrolidone), poly(hydroxyethylacrylate), poly(hydroxyethylmethacrylate), polyacrylamide, poly(N,N-dimethylacrylamide), polyacrylic acid, polymethacrylic acid, polyacyl alkylene imine or a copolymeric mixture of two or more of the above-mentioned polymers which 25   in each case comprises one or more ethylenically unsaturated bond and has a weight average molecular weight of, for example, $\geq 100$.

10. An amphiphilic block copolymer according to claim 9, wherein Q is a hydrophilic segment of formula

$$-((alk'')-O)_c-[(CH_2-CH_2-O)_a-(CHR_6-CHR_7-O)_b]-(alk'')-L_1'-Q_2 \qquad (5a)$$

(6a) or



(6b),
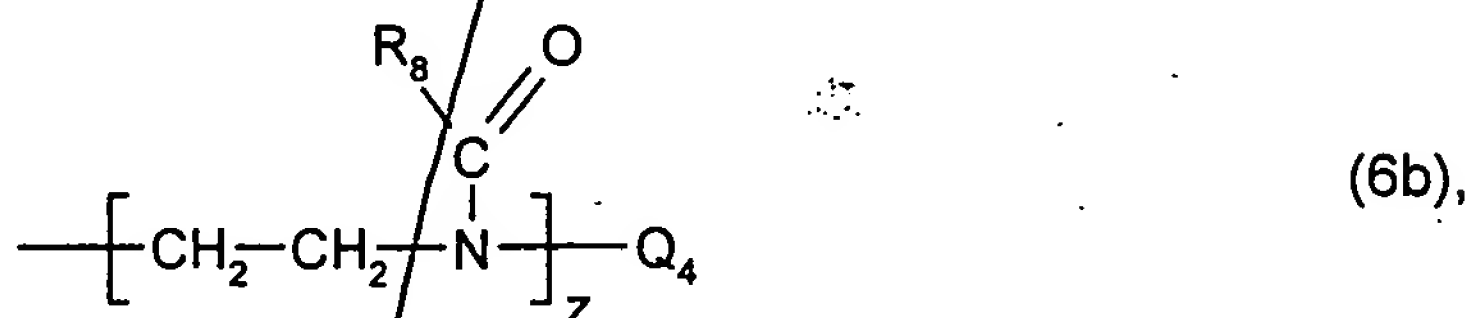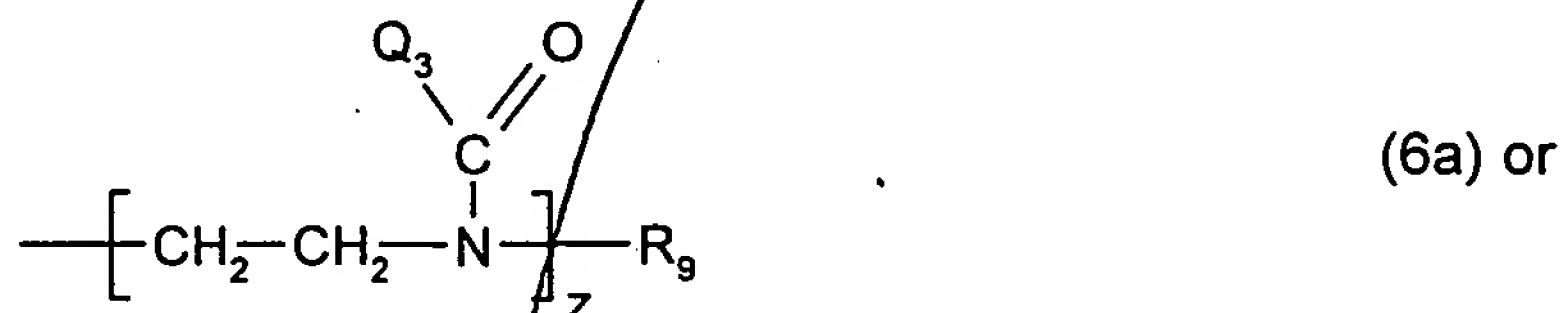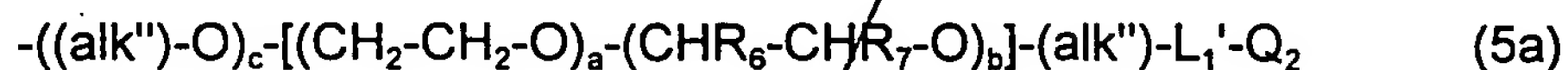
wherein $L_1'$ is a bivalent linking group of formula

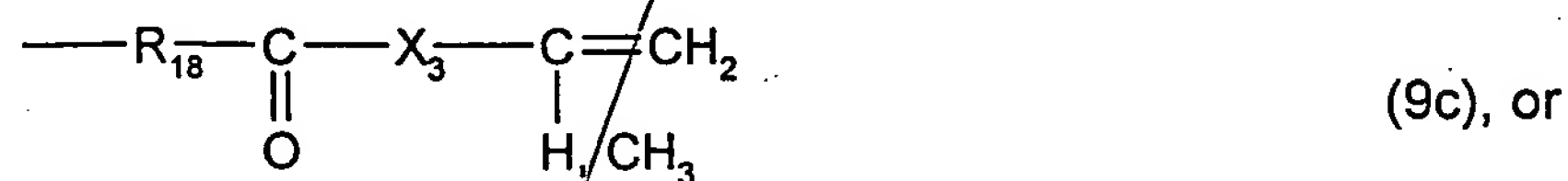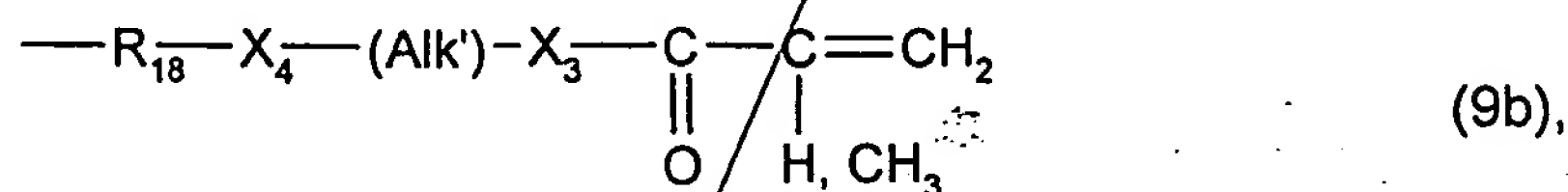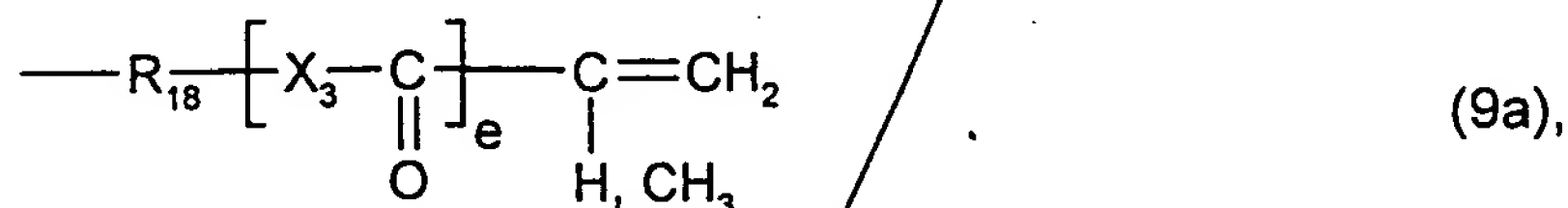| | |
|---|---|
| $- X_1 - C(O) -NH - R_{10} - NH - C(O) - X_2 -$ | (4a), |
| $- X_1 - C(O) - R_{10} - C(O) - X_2 -$ | (4b), |
| $- X_1 - C(O) -$ | (4c), |
| $- C(O) - X_2 -$ | (4d), or |
| $- X_1 - C(O) - X_2 -$ | (4e), |

wherein $X_1$ and $X_2$ are each independently of the other a group -O-, -S- or -NR_0-, $R_0$ is hydrogen or $C_1-C_4$-alkyl, and $R_{10}$ is linear or branched $C_1-C_{18}$-alkylene or unsubstituted or $C_1-C_4$-alkyl- or $C_1-C_4$-alkoxy-substituted $C_6-C_{10}$-arylene, $C_7-C_{18}$-aralkylene, $C_6-C_{10}$-arylene-$C_1-C_2$-alkylene-$C_6-C_{10}$-arylene, $C_3-C_8$-cycloalkylene, $C_3-C_8$-cycloalkylene-$C_1-C_6$-alkylene, $C_3-C_8$-cycloalkylene-$C_1-C_2$-alkylene-$C_3-C_8$-cycloalkylene or $C_1-C_6$-alkylene-$C_3-C_8$-cycloalkylene-$C_1-C_6$-alkylene,

$Q_2$ is a radical of formula
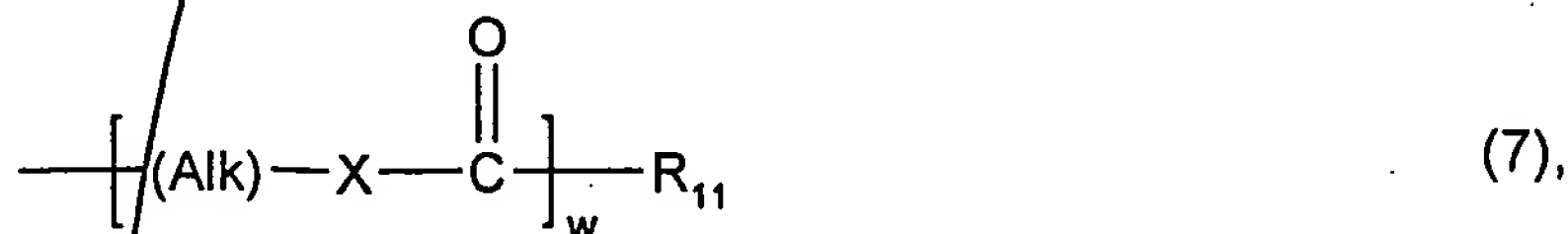


(7),

wherein (Alk) is linear or branched $C_1-C_{12}$-alkylene, X is -O- or -NH-, $R_{11}$ is an olefinically unsaturated copolymerisable radical having from 2 to 24 carbon atoms which is unsubstituted or further substituted by $C_1-C_4$alkoxy, halogen, phenyl or carboxy, and w is the number 0 or 1,

$Q_3$ is $C_3$-$C_{12}$-alkenyl or a radical -$(CH_2)_{1-4}$-O-$R_{16}$ wherein $R_{16}$ is acryloyl, methacryloyl or a group -C(O)-NH-$(CH_2)_{2-4}$-O-C(O)-C($R_{17}$)=$CH_2$ and $R_{17}$ is hydrogen or methyl,

$Q_4$ is a radical of formula

$$-R_{18}-\left[X_3-\underset{\underset{O}{\|}}{C}\right]_e-\underset{\underset{H,\ CH_3}{|}}{C}=CH_2 \qquad (9a),$$

$$-R_{18}-X_4-(Alk')-X_3-\underset{\underset{O}{\|}}{C}-\underset{\underset{H,\ CH_3}{|}}{C}=CH_2 \qquad (9b),$$

$$-R_{18}-\underset{\underset{O}{\|}}{C}-X_3-\underset{\underset{H,\ CH_3}{|}}{C}=CH_2 \qquad (9c),\ or$$

$$-\underset{\underset{O}{\|}}{C}-\underset{\underset{H,\ CH_3}{|}}{C}=CH_2 \qquad (9d),$$
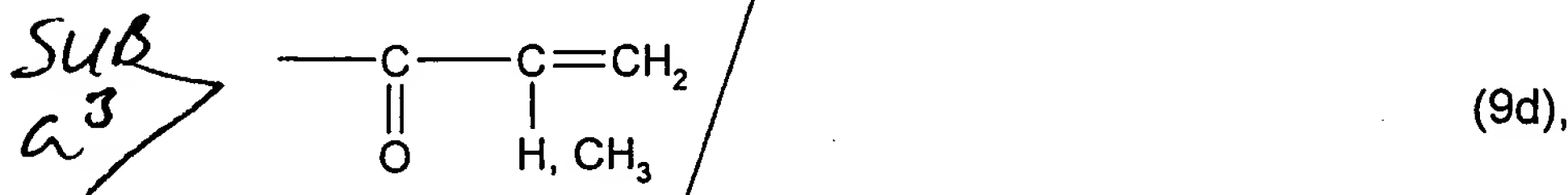
wherein $X_3$ is -O- or -NR, R is hydrogen or $C_1$-$C_4$-alkyl, $X_4$ is a group -C(O)-O-, -O-C(O)-NH- or -NH-C(O)-O-, (Alk') is $C_1$-$C_8$-alkylene, e is an integer of 0 or 1, and $R_{18}$ is $C_1$-$C_{12}$-alkylene, phenylene or $C_7$-$C_{12}$-phenylenealkylene,

one of the radicals $R_6$ and $R_7$ is hydrogen and the other is methyl,

(alk") is $C_1$-$C_6$-alkylene, c is the number 0 or 1, and each of a and b independently of the other is a number from 0 to 100, the sum of (a+b) being from 2 to 100,

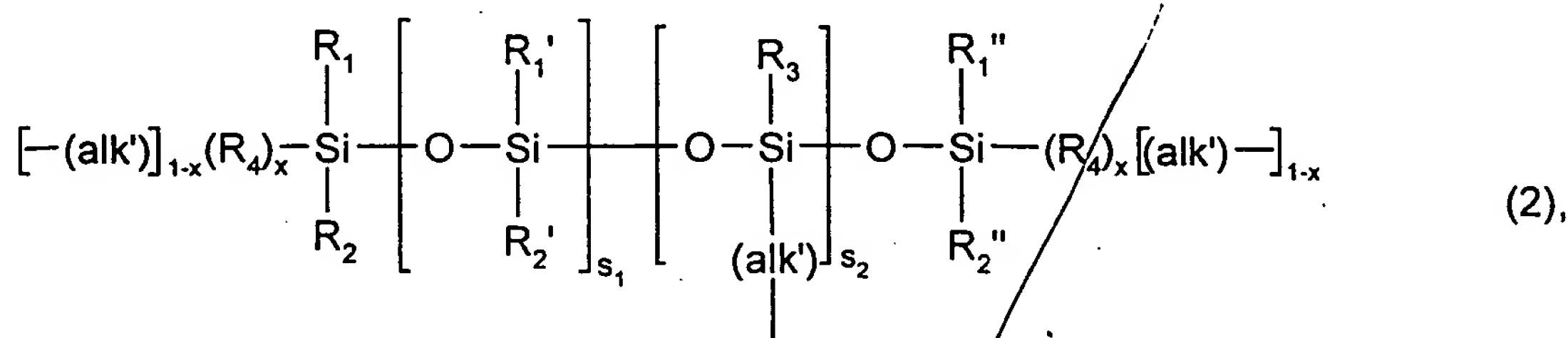$R_8$ is hydrogen; $C_1$-$C_{12}$-alkyl unsubstituted or substituted by hydroxy or fluoro and/or uninterrupted or interrupted by oxygen; $C_5$-$C_8$-cycloalkyl; phenyl; or benzyl,

$R_9$ is $C_1$-$C_{12}$-alkyl, benzyl, $C_2$-$C_4$-alkanoyl, benzoyl or phenyl, and

z is an integer from 2 to 150.


11. An amphiphilic block copolymer according to claim 2 of formula (1a), wherein

A is a polysiloxane segment of formula

$$\left[-(alk')\right]_{1-x}(R_4)_x-\underset{\underset{R_2}{|}}{\overset{\overset{R_1}{|}}{Si}}-\left[O-\underset{\underset{R_2'}{|}}{\overset{\overset{R_1'}{|}}{Si}}\right]_{s_1}-\left[O-\underset{\underset{(alk')}{|}}{\overset{\overset{R_3}{|}}{Si}}\right]_{s_2}-O-\underset{\underset{R_2''}{|}}{\overset{\overset{R_1''}{|}}{Si}}-(R_4)_x\left[(alk')-\right]_{1-x} \qquad (2),$$

wherein x and $s_2$ are each 0, and $R_1$, $R_1'$, $R_1''$, $R_2$, $R_2'$, $R_2''$, $R_3$ and $R_4$ are each independently of one another $C_1$-$C_4$-alkyl, B is a polyoxyalkylene, poly(vinylpyrrolidone), poly(hydroxy-ethylacrylate), poly(hydroxyethylmethacrylate), polyacrylamide, poly(N,N-dimethylacrylamide), polyacrylic acid, polymethacrylic acid, polyacyl alkylene imine or a copolymeric mixture of two or more of the above-mentioned polymers,

$L_1$ is a linking group of formula

$$- X_1 - C(O) -NH - R_{10} - NH - C(O) - X_2 - \qquad (4a),$$

$$- X_1 - C(O) - \qquad (4c), \text{ or}$$

$$- X_1 - C(O) - X_2 - \qquad (4e),$$

$L_2$ is a linking group of the above formula (4a), and $L_3$ is a linking group of the above formula (4c) or of the formula

$$- X_1 - C(O) - R_{10} - C(O) - X_2 - \qquad (4b),$$

wherein $X_1$ and $X_2$ are each independently of the other a group -O-, -S- or -$NR_0$-, $R_0$ is hydrogen or $C_1$-$C_4$-alkyl, and $R_{10}$ is linear or branched $C_1$-$C_{18}$-alkylene or unsubstituted or $C_1$-$C_4$-alkyl- or $C_1$-$C_4$-alkoxy-substituted $C_6$-$C_{10}$-arylene, $C_7$-$C_{18}$-aralkylene, $C_6$-$C_{10}$-arylene-$C_1$-$C_2$-alkylene-$C_6$-$C_{10}$-arylene, $C_3$-$C_8$-cycloalkylene, $C_3$-$C_8$-cycloalkylene-$C_1$-$C_6$-alkylene, $C_3$-$C_8$-cycloalkylene-$C_1$-$C_2$-alkylene-$C_3$-$C_8$-cycloalkylene or $C_1$-$C_6$-alkylene-$C_3$-$C_8$-cycloalkylene-$C_1$-$C_6$-alkylene,

Q is a radical $Q_1$ of formula

$$-\left[(Alk)-X-\overset{\overset{O}{\|}}{C}\right]_w-R_{11} \qquad (7),$$

wherein (Alk) is linear or branched $C_1$-$C_{12}$-alkylene, X is -O- or -NH-, $R_{11}$ is an olefinically unsaturated copolymerisable radical having from 2 to 24 carbon atoms which is unsubstituted or further substituted by $C_1$-$C_4$alkoxy, halogen, phenyl or carboxy, and w is the number 0 or 1, or Q

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is a polyoxyalkylene, poly(vinylpyrrolidone), poly(hydroxyethylacrylate), poly(hydroxyethylmeth-acrylate), polyacrylamide, poly(N,N-dimethylacrylamide), polyacrylic acid, polymethacrylic acid, polyacyl alkylene imine or a copolymeric mixture of two or more of the above-mentioned polymers which in each case comprises one or more ethylenically unsaturated bond and has a weight average molecular weight of, for example, $\geq100$, and p1 is an integer from 1 to 6, and q1 is an integer from 1 to 8.

12. An amphiphilic block copolymer according to claim 3 of formula (1b), wherein A, B, $L_1$, $L_2$ and Q are as defined in claim 11, and p and q are each independently of the other an integer 2 to 15.

13. A process for the manufacture of a molding, which comprises crosslinking an amphiphilic block copolymer of formula (1) according to claim 1 in a mold.

14. A process according to claim 13 wherein the molding is an ophthalmic molding and wherein the block copolymer is photo-crosslinked in an ophthalmic mold using actinic radiation.

15. A molding obtained by the process according to claim 13.

16. A molding according to claim 15, which is an ophthalmic molding, intraocular lens, or artificial cornea.

17. A molding according to claim 15, which is a contact lens.